

Appendix A

Ian Drew/USFWS



View of upland forest on the refuge

Land Protection Plan

Land Protection Plan

I. Introduction

We propose to expand the land acquisition boundary of the Lake Umbagog National Wildlife Refuge by 49,718 acres. We also recognize the importance of communicating our interest in acquiring and conserving that land to our partners in conservation, the local community, and the public.

This land protection plan (LPP) explains our interests and intentions to owners of land near the refuge, to state agencies in New Hampshire and Maine, our conservation partners, local communities and the public. It also presents methods the Service and landowners interested in selling their land can use in accomplishing the wildlife habitat objectives of alternative B, our preferred alternative in the draft comprehensive conservation plan (CCP) and environmental impact statement (EIS) for the refuge.

We developed this LPP at the same time and in conformance with that draft CCP and EIS. We believe our acquisition of additional land in fee title and conservation easements will contribute significantly to the conservation of federal trust resources in the Upper Androscoggin River watershed.

The purposes of this LPP are

- to inform landowners of our long-standing policy of acquiring land only from willing sellers. If an owner is not interested in selling, we will not purchase that land or an easement on it.
- to inform the public clearly and concisely about resource protection needs, our priorities and policies for protecting land, the extent of our proposal, and potential conservation methods;
- to describe the impacts of our proposal; and
- to describe our intentions for managing the land we acquire.

Attachment A.1 of this LPP contains maps and a table of ownership information to help owners of lands in the area understand our interest in conserving those lands. The maps (attachment A.1, map tiles 1–6) show the present refuge boundary, our proposed fee title acquisition and conservation easement areas, and the parcels of land in those areas. Table A.7 identifies each parcel, its tax map number, acreage, ownership, and our priority and recommended option for protecting its wildlife habitat.

II. Project Description

The Present Refuge

The Lake Umbagog refuge now comprises 20,513 acres in Coos County, New Hampshire, and Oxford County, Maine (see map A–1). Its purposes are to provide long-term protection for unique wetlands, threatened or endangered species and migratory birds of conservation concern, and sustain regionally significant concentrations of wildlife. About half of the refuge consists of forested and non-forested wetland habitat and water, and half of forested upland habitat typical of the Northern Forest ecosystem.

Umbagog Lake, located in the northern part of the Androscoggin River watershed, is the most downstream of the lakes in the Rangeley chain. We established the refuge after years of partnership planning with the States of New Hampshire and Maine, other conservation organizations, timber companies and private landowners. That planning led to our current ownership of 20,513 acres of wetland and forested upland habitat adjacent to the lake, within the present 26,905-acre approved refuge boundary.

Our environmental assessment of 1991 states that we created the refuge

“to ensure the long-term protection of unique wetland habitats adjacent to Lake Umbagog, on the northern New Hampshire/Maine border. These extensive wetlands serve as important breeding and migration habitat for many wetland-dependent migratory wildlife species of current concern to the Service. The refuge includes wetlands and portions of associated surrounding uplands, and would protect habitat for the endangered bald eagle and peregrine falcon, waterfowl species of priority such as the declining black duck, and many species of federal and state management concern including the common loon, northern harrier, American woodcock, and others. The refuge will serve to protect unique habitats that support a variety of migratory bird and resident mammal, fish, reptile, amphibian, invertebrate and rare plant species, and will thereby contribute to the conservation of biological diversity in the northeastern United States.”

We established the refuge for the following purposes, under the following authorities.

“the conservation of wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions” [16 U.S.C. 3901(b); Emergency Wetlands Resources Act of 1986];

“for use as an inviolate sanctuary, or for any other management purpose, for migratory birds” [16 U.S.C. § 715d; Migratory Bird Conservation Act];

“for the development, advancement, management, conservation, and protection of fish and wildlife resources” [16 U.S.C. §742f(a)(4); Fish and Wildlife Act of 1956]; and

“for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude” [16 U.S.C. §742f(b)(1); Fish and Wildlife Act of 1956].

The refuge and the area around it support more than 166 wildlife species of elevated conservation concern identified in national, regional, and state plans (see CCP appendix B for a list of species and habitats of conservation concern). They include 141 species of birds, 10 mammals, 11 fish and 4 amphibians. All of the birds and three of the fish are federal trust resources. Many of the birds that depend on the area for breeding purposes are Neotropical or short-distance migrants. In addition, we identified 38 plants and 12 natural communities of importance.

The refuge is regionally significant for waterfowl, the bald eagle, osprey, and common loon, and contains other resources of importance, such as designated deer wintering sites. It contains a regionally significant wetland complex, identified in the Regional Wetlands Concept Plan, prepared in 1990 under the Emergency Wetlands Resources Act of 1986. Refuge lands have the potential to support additional rare species, including the federal-listed Canada lynx, known to use habitats in the area. The Eastern Brook Trout Joint Venture Plan identifies native brook trout as a high priority species of concern for the refuge area, and a native brook trout population relies on Umbagog Lake and its tributary, the Magalloway River, as wintering habitat.

The North American Waterfowl Management Plan Atlantic Coast Joint Venture (ACJV) identifies the lake and its associated wetlands as a high priority waterfowl focus area in New Hampshire. They support significant concentrations of waterfowl, including black duck, wood duck, ring-necked duck, common and hooded merganser, goldeneye and other species. The refuge also supports the highest concentrations of nesting black ducks in New Hampshire, a species of concern because of historic population decline. The regional importance of the Lake Umbagog area for waterfowl was one of the reasons for establishing the refuge. The black duck is a species of highest priority for conservation in Bird Conservation Region (BCR) 14, the Atlantic Northern Forest. The Umbagog area also has the highest nesting concentration of ring-necked ducks in New Hampshire, and is extremely important for the American woodcock, a species of highest concern for BCR 14.

Additional reasons for establishing the refuge were to provide permanent protection for loon, bald eagle and osprey breeding activity, and support other forest and wetland-dependent species. Only three refuges support significant numbers of breeding common loons in the lower 48 states. Common loons are a species of management concern for the Northeast and one of high priority for conservation in BCR 14. The bald eagle is federal-listed as a threatened species under the Endangered Species Act, and is state-listed by New Hampshire as endangered and by Maine as threatened.

We have acquired land for the refuge primarily by purchasing full fee title at market value from willing sellers. Our funding has come primarily from two sources: the Land and Water Conservation Fund, appropriated annually by Congress, and the Migratory Bird Conservation Fund, derived from the sale of Federal Duck Stamps. Table A.1 describes the history of refuge land acquisition. The Service owns all of that acreage in full fee simple, except a conservation easement on 6 acres.

Table A.1. History of refuge land acquisition

Year	Acres	Funding Source
1992	128	LWCF
1993	41	LWCF
1995	5,986	LWCF, MBCF
1996	203	LWCF
1998	214	MBCF
1999	2,488	LWCF, MBCF
2000	1,309	LWCF, MBCF
2001	8,847	LWCF, MBCF
2002	191	LWCF
2003	1	LWCF
2004	8	LWCF
2005	1,097	LWCF, MBCF
Total	20,513	

Our Proposed Expansion

In support of the priorities, habitat goals, and objectives identified in alternative B of the CCP, we propose to expand the existing, approved refuge boundary

by 49,718 acres. We would combine acquisitions in fee simple (65 percent) with conservation easements (35 percent) from willing sellers. All of the lands we plan to acquire are undeveloped. They are either high quality wildlife habitat, or potentially could be. They occur in amounts and distributions that provide us management flexibility in achieving our habitat goals and objectives. Collectively, they would form a land base that affords vital linkage among other conserved lands in the Upper Androscoggin River watershed and Northern Forest region. As we acquire lands in fee, we would manage them according to the goals, objectives, and strategies in CCP alternative B.

Our land conservation objectives would complement the management of adjacent conserved lands, both public and private, thus enhancing our contribution to wildlife management on the regional landscape. Working in partnership with surrounding landowners would be crucial in successfully implementing this LPP. We developed it cooperatively with our New Hampshire and Maine fish and wildlife agency partners. Our land conservation partners working in the Northern Forest also support it.

We designed alternative B to emphasize the conservation of specific habitat types to which the refuge can make the most important ecological contribution in the Upper Androscoggin River watershed, the larger region of the Northern Forest, and the Refuge System. Those habitat types support a wide variety of federal trust species: in particular, birds of conservation concern identified in BCR 14 (CCP appendix B). For each objective for each type of habitat, we identified focal species whose life requirements would guide our management of that type. We selected those focal species because we believe their habitat needs broadly represent the habitat requirements for most of the other wildlife that depend on that habitat type, including other federal trust resources and species of conservation concern.

Our highest priority continues to be protecting the biological integrity, diversity, and environmental health of Umbagog Lake and significant wetlands in that area. The CCP proposes that we promote and sustain a spruce-fir/northern hardwoods forest with a high conifer component, viewed from the landscape scale of the entire Upper Androscoggin River watershed basin. Our analysis indicates that site capability and natural potential of the refuge places it in a unique position to make an important contribution to that mixed forest type in the watershed, the larger Northern Forest region, and the Refuge System. The CCP also proposes to implement actions that would improve habitat for the American woodcock.

III. Continuing Partnerships

Before the mid-1980s, conservation in Coos and western Oxford counties focused primarily on the White Mountain National Forest, with limited effort toward conserving waterfront in the Rangeley and Connecticut lakes. Large timber companies owned most of the land in the North Country, and worked it to supply their mills. In the 1980s, the long-standing tradition of timber companies owning the mills and the land shifted. The companies started to sell lands once thought to be held in perpetuity. Development pressure on the shoreline increased. Access to those lands, once considered a given in the North Country, became questionable.

That did not happen overnight, but has slowly progressed to a point that, today, very little forestland in Coos and western Oxford County is attached to local mills. That shift in ownership, the subdivision of large, contiguous timberlands, and the increasing demand for development spawned attempts to conserve large, contiguous blocks of forest and key ecologically sensitive areas in the Northern Forest. Notably, the Nash Stream State Forest (see map A-2) was established

when, in 1988, Diamond International offered 90,000 acres for sale in northern New Hampshire and Vermont, part of 1.5 million acres of forestland across northern New England and New York split off from the mills by an investor and resold in smaller parcels for development.

In response to rising concerns over the loss of forestlands, in 1990, Congress established the Northern Forest Lands Council, which grew out of a multi-state Governor's Task Force study commission and a related Northern Forest Lands Study. Its mission included promoting economic stability for the communities of the area by maintaining large areas of forest, encouraging the production of a sustainable yield of forest products, and protecting recreational, wildlife, scenic, and wild land resources. The council presented its recommendations in *Finding Common Ground: Conserving the Northern Forest*. That report focuses on four priority topics: (1) foster the stewardship of private lands, (2) protect exceptional resources, (3) strengthen the economies of rural communities, and (4) promote decisions that are more informed.

The council developed a plan for the landscape-scale conservation of the Northern Forest that recognizes two very important realities:

- 1) the Northern Forest “is a complex, dynamic interrelationship of people, communities, land, water, plants and animals” that needs to “be considered as an entire package”; and,
- 2) “no single person or organization can achieve the broad goals in this report”; it needs to be done in partnership.

As the Nash Stream State Forest was being created, partnership planning began for the conservation of Lake Umbagog based on its unique wildlife values and ACJV status. That partnership among New Hampshire and Maine, conservation organizations, timber companies, local private landowners, and the Service targeted the conservation of the large wetland complexes along the lake and its shoreline, in response to increasing pressure for their development. That resulted in the creation of the refuge in 1991 and the expansion of Umbagog Lake State Park.

Conservation in the region has evolved into a dynamic, landscape-level, multi-partner effort. Through the council's recommendations, state agencies, private conservation organizations, local communities, private businesses, the Service, and other federal agencies have collaborated to accomplish conservation goals in the area. Federal programs, such as Forest Legacy, have provided support.

Accomplishments (see map A-2)

- Nash Stream State Forest (1988)
- Umbagog Lake State Park (1990)
- Lake Umbagog NWR (1992)
- Rapid River Corridor State Easement (1997)
- Pingree Forest Partnership Conservation Easement (2001)
- Pond of Safety (2001)
- Randolph Community Forest (2001)

- The Nature Conservancy Bunnel Tract (2001)
- Connecticut Lakes Headwaters (2003)
- Rapid River Shoreline - Rangeley Lakes Heritage Trust (2004)
- Boundary Headwaters Project (2005)
- Errol Town Forest (2005)

Current land conservation projects

- Phillips Brook Forest Legacy proposal (approved 2005, FY07 request)
- Grafton Notch-Mahoosucs Forest Legacy project (#1 Forest Legacy project, FY 2007)

The Service Role

The council's picture of the Northern Forest is one "of a landscape of interlocking parts and pieces, inseparable, reinforcing each other: local communities, industrial forest land, family and individual ownerships, small woodlots, recreation land, and public and private conservation land." The ongoing, multi-partner conservation partnership has applied that vision to the Upper Androscoggin River watershed. The refuge provides a federal component focusing on the conservation of migratory birds and core wetlands and forestlands in the area of Lake Umbagog.

The partnership continues to plan at the landscape level, focusing on improving connectivity between existing conservation tracts and preserving working forest and public access. That is particularly important in light of increasing trends in subdividing timberland. Both states and other partners expect the refuge, centrally located between tracts of conservation land, to play a key role in further improving linkage among them. Our proposed expansion will improve connections between tracts of the Maine Bureau of Parks and Lands (MBPL), the Pingree easements, the Grafton Notch Forest Legacy project, state park land of New Hampshire, the Errol Town Forest, and the Second College Grant (Dartmouth College). In conjunction with expanding the refuge, additional activity by our partners will focus on linkages in the surrounding area.

IV. Status of Resources to Be Protected

Wildlife and Habitat Resources

The comprehensive conservation planning team identified species of conservation concern and associated habitats as a focus for refuge management. Factors considered include the geographic location of the refuge; local site capabilities; relative abundance and distribution of species; respective species' status in national and regional conservation plans; and a determination of the most important and effective ecological contribution of the refuge to the Northern Forest ecosystem and the Refuge System. We compiled the species and habitats of concern in CCP appendix B from the following sources.

- North American Waterfowl Management Plan—Atlantic Coast Joint Venture
- Partners in Flight Plan—Physiographic Area 28
- North American Bird Conservation Initiative (NABCI)—Bird Conservation Region 14—Atlantic Northern Forest
- Federal Threatened and Endangered Species list
- Maine Natural Areas Program—State Threatened and Endangered Species list

- New Hampshire Natural Heritage Bureau—State Threatened and Endangered Species list
- Northeast States Nongame Technical Committee
- Maine and New Hampshire State Comprehensive Wildlife Conservation Plans
- New Hampshire Natural Heritage Inventory
- USFWS Birds of Conservation Concern—Region 5
- FERC Errol Dam license
- Eastern Brook Trout Joint Venture Plan

We also identified high- and moderate-priority habitats for the refuge, and developed a list of “refuge focal species” associated with them. We selected species whose habitat needs broadly represent the habitat requirements for other native wildlife dependent on these same habitat types, including other federal trust species. Table A.2 lists those priority habitats and focal species. The conservation of wetlands and waters continues to be our highest priority for managing this refuge. Maine and New Hampshire assisted in selecting habitats and species and developing refuge goals and objectives. The wetlands and related wildlife resources identified as refuge priorities overlap state wetland management goals.

Table A.2. Priority habitats and focal species

High Management Priority Habitats	Refuge Focal Species
Fen and Flooded Meadow	American Black Duck Ring-necked Duck Common Loon
Wooded Floodplain	American Black Duck Cavity Nesting Waterfowl Northern Parula
Shrub-Scrub Wetland	American Woodcock American Black Duck Canada Warbler
Open Water	Native Brook Trout Eagle and Osprey Common Loon
Mixed Forest – “Mixed Woods” Habitat Type	Blackburnian Warbler Canada Warbler Black-throated Green Warbler
Mixed Forest – Spruce/fir Habitat Type	Blackburnian Warbler Black-throated Green Warbler
Moderate Management Priority Habitats	Refuge Focal Species
Boreal Fen and Bog	Floating Island National Natural Landmark Rare Plant Communities
N. White Cedar Swamp	Rare Plant Community
Lakeshore Pine Hemlock	Eagle and Osprey Nest Sites
Mixed Forest – Northern Hardwood Habitat Type	Canada Warbler American Woodcock

Although the regional importance of the Umbagog area for wildlife has much to do with its unique wetland complex and waters, we cannot view those habitats as separate from the surrounding forestlands. Their interrelationship is such that the future management of those lands potentially could affect water quality and the ecological integrity of the entire system. Those lands provide both important forested habitat and essential habitat many wetland-related species need for nesting, feeding, moving, or other purposes. One of our main goals for the refuge is to manage upland forest habitats consistent with their site capabilities to benefit federal trust species and other species of conservation concern.

Historically, the forest in the basin of the Upper Androscoggin River watershed was a spruce-fir/northern hardwood mix. That forest included more conifers than today, particularly in the lowlands. Present conditions reflect 150 years of logging and the selection of softwoods, resulting in the higher presence of hardwood species and even-aged stands. Most of the acreage the refuge acquired was cut heavily before sale. Our review of historic aerial photographs for the surrounding landscape shows heavy cutting of conifer forest since the mid-1980s. An important opportunity exists to restore and maintain the mixed spruce-fir/northern hardwood forest both on the refuge and on the landscape around it.

Because of our species/landscape analysis and the decision to sustain mixed spruce-fir/northern hardwood forest, we chose the Blackburnian and black-throated green warblers as focal species representative of that upland forest habitat. In managing the refuge, we will promote the conifer component in the mixed forest landscape to benefit those species. That will also benefit other species dependent upon that forest type: many of conservation concern. For example, the bay-breasted and Cape May warblers, both species of highest concern for BCR 14, appear on the refuge in low abundance because of their preference for extensive, contiguous, mature conifer forests. Our management, designed to increase the conifer component in the refuge landscape and promote larger blocks of mature spruce-fir, would benefit those species increasingly over time.

We designed the proposed expansion to provide the refuge with opportunities to accomplish several important objectives:

- 1) these lands are crucial for ensuring the future water quality for refuge core wetlands and waters, at a time of increasing uncertainty over the future ownership and management of surrounding timberlands;
- 2) these adjacent lands contain significant wetland and forest resources that will support refuge wildlife and habitat objectives; and
- 3) these acquisition areas were configured to allow the Service to expand its partnership role by improving connectivity among conservation lands nearby.

Refuge lands located along the lake and the Magalloway, Androscoggin, Rapid and Dead Cambridge rivers contribute to the Northern Forest Lands Council priority for protecting water quality in that region's rivers, streams and lakes. Proposed fee and easement areas would expand that protection to include remaining lands flowing directly into the core waters and wetlands of the refuge, including lands along the Rapid River, and B Pond and B Brook to the east, the Swift Cambridge River to the south, and the Magalloway River and Sturtevant Pond to the north. The lands we propose along the Mollidgewock and Bog brooks to the southwest will contribute to the protection of water quality in the Androscoggin River.

We designed our proposal to acquire lands in fee to provide a high level of protection and management capability for significant wetlands along the Magalloway and Swift Cambridge rivers, the Mollidgewock, Bog Brook, and

B Pond and B Brook, and several related ponds. The location of those lands relative to the refuge, their topography, soil types, and their interspersed wetlands and uplands provide the best opportunity for their restoration, maintenance, and long-term management.

Regarding forest types, we analyzed site capabilities as part of the comprehensive conservation planning both for refuge lands and proposed expansion lands. We assessed current vegetation using national land cover data, and predicted potential vegetation based on computer-modeled “ecological land units” (ELUs) provided by The Nature Conservancy. Past and present harvesting has influenced forest composition on those lands. We propose to manage them based on site capability, and promote and sustain mixed spruce-fir/hardwood forest. Other areas of BCR 14 and the northeastern United States provide opportunities to manage and sustain other forest types, such as conifer forest and hardwood forest, and we expect surrounding landowners to continue to conduct management as in the past, driven by the timber market, resulting in a higher hardwood component and a higher presence of hardwood-dependent land bird species.

Service management would contribute to federal, state and BCR partnership goals for land bird species tied to the mixed spruce-fir/hardwood forest, and provide habitat for other species of concern. The rivers, brooks, and ponds in the proposal area, and their associated forested, shrub, and emergent wetlands, provide important habitat for waterfowl, wading birds, shorebirds; wetland-dependent mammals such as the beaver, otter, mink, muskrat, and moose; and a host of reptile, amphibian, and other wildlife species. Worthy of special note, the many small streams, beaver ponds, and shrub wetlands in the expansion area support most of the black duck breeding activity, and early-successional re-growth in extensive cutover areas near wetlands provide important nesting habitat for that species of concern. The same areas provide important breeding and feeding habitat for the American woodcock, and provide opportunities for woodcock management (map A-3). At the same time, they support other high-priority BCR target species, such as the Canada warbler, another focal species.

The mixed forest will provide connectivity of habitats for mammals with large home ranges and protect many critical white-tailed deer wintering areas both states identified in the expansion area (map A-4). Proposed expansion lands include wildlife habitat identified as significant through special zoning designations, including the Mollidgewock and Bog Brook drainages, designated PD-3. That zoning ordinance, adopted by Coos County for unincorporated townships, identifies areas recommended by the New Hampshire Department of Fish and Game (NHFG) and designated by the County Board as critical wetland wildlife habitat areas. They are recognized as critical wetland habitat and streamside coniferous travel corridors for boreal wildlife that use spruce/fir habitat, thereby maintaining viable populations for species such as deer, moose, lynx, marten, osprey, eagle, spruce grouse, black backed and three-toed woodpecker, black bear, fisher and 122 additional vertebrate species of wildlife.

The present refuge and its expansion lands are also known to have high fisheries values, particularly for the brook trout, the only trout native to much of the eastern United States. In 2004, in recognition of the need to address regional and range-wide threats, the Eastern Brook Trout Joint Venture (EBTJV) formed to halt the decline of brook trout and restore fishable populations. The EBTJV comprises fish and wildlife agencies from 17 states, federal agencies, national conservation organizations, and academic institutions, and considers the protection of forested watersheds a high priority. In New Hampshire, 7 percent of sub-watersheds are known to support intact, self-reproducing populations of brook trout. Those sub-watersheds, including the upper Connecticut River system and Umbagog’s Magalloway, Dead Diamond and Swift Diamond rivers represent most

of the brook trout habitat remaining intact outside Maine. Maine is considered the last true stronghold for brook trout in the eastern United States, with as many intact watersheds as all the other states in the eastern range combined.

The easement lands we propose for the expansion offer an opportunity to ensure the continuation of compatible, long-term forest management, water quality protection, and public access and recreation. Those lands can be considered as providing a “supporting natural landscape” function for fee tracts containing or bordering significant wetlands and waters.

Threats to Resources

The Northern Forest is changing. In the last decade, significant changes in land use have threatened the natural landscape, culture, and communities of the region. Its large forest landholdings, many owned by multinational corporations, are being sold at an increasing rate. Many large tracts are being divided and sold to developers or institutional investment corporations, including insurance companies and bank trusts. Those sales have raised concerns about the rising trend of unsustainable timber cutting, forest subdivision, and other permanent development, particularly around lakefronts and secluded forest tracts. In addition to fragmenting the forests, those trends can affect wildlife habitat, restrict public access, degrade water quality, spoil the remote, scenic beauty of the forest, and undermine the hope of a sustainable forest-based economy to support Northern Forest communities.

The most pervasive human influence on the natural landscape has been commercial timber harvesting and production. Their cumulative effects in the region have been a change in the age structure of the forest and a gradual shift toward greater dominance by northern hardwoods. Although a century of timber harvesting in this region has not resulted in the significant loss of species or populations of forest birds, changes in wildlife mainly have involved changes in local composition and relative abundance, as the mix of successional stages and conifer vs. hardwood forests shifted across the landscape.

Conservation planning in this region must reconcile the needs of long-term, sustainable timber production, the habitat needs of high-priority wildlife species, and the need to preserve public access. The loss of the economic sustainability of commercial forestry could result in the conversion of forest habitats to urban development or other, less wildlife-friendly landscapes. The recent trend in the region for unsustainable timber cutting and subdivision of large tracts of forestland has caused concern among wildlife agencies and the conservation community. That trend also offers a crucial opportunity for partners to work together to permanently conserve the ecological integrity of the Northern Forest, preserve public recreational opportunities, and promote the economic sustainability of the forest-based economy. Many successful partnerships have formed around those goals; several have included a Service role.

V. Proposed Action and Objectives

Proposed Acquisition Area

This LPP expands the land acquisition area for the refuge by the 49,718 acres we propose to acquire in CCP alternative B: 32,159 acres by purchasing fee title and 17,559 acres by purchasing conservation easements (see attachment A.1, map tiles 1–6 and table A.7). That expansion is vitally important for meeting the refuge habitat goals and objectives for priority wetland and forestland wildlife species we set forth in the CCP. It also serves to strengthen our ongoing partnership with the States of New Hampshire and Maine and several conservation organizations to ensure the continued existence of the unique wetland, wildlife, forest and recreational resources of the area around Lake Umbagog.

We based our proposals to acquire land in fee title or conservation easements on several factors. We propose fee acquisition for lands in both New Hampshire and Maine along the Magalloway River, Sturtevant Pond, the Dead Cambridge and

Swift Cambridge rivers, and the Mollidgewock and Bog Brook drainages. We proposed fee acquisition for lands that

- 1) contain a significant amount of wetland and associated water bodies of high wildlife resource value;
- 2) lie in the immediate drainage area of present core refuge lands, so that they play a role in ensuring the protection of water quality for important wetland and wildlife resources;
- 3) ensure habitat connectivity between the refuge and the surrounding network of conservation lands; and
- 4) fall under a high degree of threat of permanent habitat loss, such as the potential for subdivision and development of shore land next to wetlands and bodies of water with high resource value.

We propose conservation easement protection for the B Pond/Rapid River area, lands south of Sturtevant Pond, the Mt. Dustan area, the Mollidgewock headwaters area, and along the Androscoggin River. The tables below show the acreage by each method of acquisition in towns in New Hampshire (table A.3) and Maine (table A.4).

Table A.3. Acres by acquisition method in New Hampshire

Town	Fee	Easement	Town Total
Cambridge	7,153	6,706	13,859
Errol	5,138	472	5,610
Wentworth Location	1,447	2,170	3,617
Subtotals	13,738	9,348	
Total			23,086

Table A.4. Acres by acquisition method in Maine

Town	Fee	Easement	Town Total
Grafton	2,489	0	2,489
Upton	11,021	5,153	16,174
Magalloway Plantation	4,911	3,058	7,969
Subtotals	18,421	8,211	
Total			26,632

The boundaries of our proposed expansion correspond to property boundaries or identifiable features such as existing roads. We are interested in protecting and restoring wildlife habitat. Therefore, we have excluded specific lands from the refuge acquisition area: the town centers of Errol and Upton, and the more developable lands along routes 16 and 26, to allow for necessary future town development and economic growth.

We plan to manage forested habitat to benefit the focal species we have identified, using accepted forest silviculture practices and following best management practices, on lands with low to moderate resource sensitivity. That approach

will support all wildlife species associated with the mixed spruce-fir/northern hardwood forest type. Appendix K of the CCP details our management plans.

One of our main objectives is to create corridor connections and linkages to the larger conservation land network in the upper Androscoggin River watershed. This proposal connects the refuge to lands under conservation easement protection to the east in Maine, including the large Pingree tracts along Upper and Lower Richardson Lake and in C Surplus. To the south, in Maine, is the Grafton Notch State Park, and to the west, along the Androscoggin River, protected lands include the 13-Mile Woods Forest Legacy conservation easement and the Errol Town Forest.

Current refuge lands are open to the public for hunting, fishing, wildlife observation and photography, environmental education and interpretation, camping in designated areas, and provide designated corridor connections for the interstate snowmobile trail network. The land we acquire in the proposed expansion area would support these same activities, and would be open for long-term public access for compatible, priority public use (see map A-5). We will structure Service easements like Forest Legacy easements, to support continued timber management and public access.

Land Cover and Land Use

We mapped the broad habitat types the CCP team developed for the area (see table A.5). Most of the land we included in the proposed acquisition area is undeveloped forest and wetland (map A-6). We do not assume in alternative B that we would actively manage land the Service does not own in fee, unless we establish a cooperative management agreement with the landowner.

Table A.5. Acquisition method by habitat type

Habitat Type	Expansion Proposal (Results under management; >100 years)	
	Fee Acres	Easement Acres
Fen and Flooded Meadow	115	17
Boreal Fen and Bog	2,458	341
Northern White Cedar	0	0
Scrub-Shrub Wetlands	842	64
Water	46	23
Wooded Floodplain	123	13
Lakeshore Pine-Hemlock	0	0
Spruce-fir	17,211	9,503
Mixed Wood	6,645	4,636
Northern Hardwoods	4,719	2,941
Recently Harvested	not predicted	not predicted
Fields/Residences	0	0
Cliff	0	21
Total	32,159	17,559

Maps and Ownership Table

Attachment A.1 at the end of this LPP lists all land parcels in map tiles 1–6 and table A.8. We produced the maps and table using available tax parcel boundaries and tax database information for Errol, Wentworth Location, Cambridge, Upton, Magalloway Plantation and Grafton.

On the maps, a parcel number keyed to the table identifies each parcel. The table provides the following information:

- LPP Number
- Tax parcel identification number
- State
- Town
- Acquisition method
- Acquisition priority
- Acres estimated by our Geographic Information System

Land Protection Priorities

All of the lands we included in this expansion proposal have significant resource values and high potential for ensuring habitat connectivity between the refuge and surrounding conservation lands. In general, the actual order of land acquisition will be influenced by availability from willing sellers, and the availability of funding at that time. However, as landowners offer parcels of land in the proposed acquisition area to the Service, and as funds become available, we will base priority for acquisition on several factors. We have assigned one of the following three priority categories to those lands.

Priority 1—the remaining 6,392 acres of land we have not acquired in the original land acquisition boundary, approved in 1991. The Service role in the original partnership for the area (Lake Umbagog Study Team) focused on protecting the unique wetland complex and associated wetland-dependant wildlife from increased human activity, disturbance, and degradation of water quality. That included the intention to ensure that sections of lakeshore were not left vulnerable to major subdivision and high-density development.

Priority 2—the 32,159 acres of lands identified for fee acquisition. These lands center on wetlands and water bodies of high value, and in many cases they drain into the existing refuge and affect water quality. We intend fee ownership to provide maximum long-term protection and management capability.

Priority 3—the 17,559 acres of land identified for conservation easement protection.

When willing sellers offer more than one parcel at the same time and funding is limited, we will determine our level of interest on the following criteria developed for ranking and prioritizing land parcels:

- 1) the presence of significant amounts of wetland habitat
- 2) the amount of wetlands of high wildlife resource value
- 3) the degree of threat of permanent habitat loss, such as potential for subdivision and development of shore land adjacent to high resource value wetlands and bodies of water
- 4) the location within the immediate drainage area to existing core refuge lands, and subsequent role in ensuring protection of water quality for important wetland/wildlife resources
- 5) the presence of high upland resource values

We configured our proposed boundaries for fee and easement areas with the criteria above in mind. For example, the fee boundary in the Cambridge/south Errol portion of the project area is intended to offer a high level of protection and management capability for the significant Mollidgewock Brook drainage and its associated wetland complex. Because a number of factors also influence acquisition priority, including the availability of willing sellers and the availability of funding, we reserve the right to be flexible with that priority list. In addition, we must be flexible with our methods of acquisition and priorities to meet the needs of individual landowners.

VI. Protection Options

We considered these four protection options in developing our proposed action:

- Option 1.—no Service action
- Option 2.—management or acquisition by others
- Option 3.—less-than-fee acquisition by the Service
- Option 4.—fee acquisition by the Service

Our proposal includes a combination of the protection options outlined below, including providing assistance and support to conservation partners and landowners, acquisition and management by others, and the purchase of lands or conservation easements by the Service. Service land protection policy is to acquire only the minimum interest necessary to meet refuge goals and objectives, and acquire it only from willing sellers.

We believe this combination approach is a cost-effective way of providing the minimal level of protection needed to accomplish refuge objectives while also attempting to meet the needs of landowners. However, as parcels become available in the future, changes in the protection option for a specific parcel may be warranted to ensure we are using the option that best fits the situation at that time.

Option 1.—No Action

In option 1, we would not expand the refuge acquisition boundary or otherwise attempt to protect and manage additional habitat in the vicinity of the refuge. The draft CCP evaluates this option as part of “Alternative A, No Action (Current Management).” We did not select this approach as part of our proposed action because

- it does not provide permanent long-term protection to important wetland and upland habitat and Federal trust resources in the project area;
- our State and non-profit conservation partners have recommended and supported Service action as part of continuing cooperative conservation in northern New Hampshire and western Maine; and,
- we feel an opportunity exists to help provide connectivity between existing conservation lands of high resource value, and that opportunity will be lost as timberlands in the area are further subdivided, fragmented and resold.

Regulatory land use controls do exist to various extents, and offer varying degrees of protection in different portions of the project area. Examples include county/local zoning such as the Coos County PD3 zoning district, and land use restrictions afforded under the Maine Land Use Regulatory Commission. The county’s Master Plan reflects local support of the area’s natural resources and forestlands seen as vital to the community’s economic well-being. However, this area of New Hampshire and Maine is experiencing accelerating subdivision, development, and recreational pressures.

Option 2.—Management or Acquisition by Others

In option 2, we would continue to support the activities of our partner organizations and agencies in the project area:

- the New Hampshire Fish and Game Department;
- the New Hampshire Division of Parks and Recreation, the New Hampshire Division of Forests and Lands and its Bureau of Natural Heritage, within the New Hampshire Department of Resources and Economic Development;
- the Maine Department of Inland Fisheries and Wildlife;
- the Maine Bureau of Parks and Lands, the Maine Forest Service and the Maine Natural Areas Program, within the Maine Department of Conservation;
- the New Hampshire Audubon Society;
- The Nature Conservancy;
- the Trust for Public Land;
- the Society for the Protection of New Hampshire Forests; and,
- other conservation partners and interested local landowners.

Although our partners provide some level of protection for land, they often do not have the financial or administrative resources to buy all those lands or conservation easements, nor can they always manage the parcels actively to protect our priority species. The proposed action (attachment A.1, map tiles 1-6) assumes these groups will continue to buy lands or easements in the project area, subject to their own funding limitations. Partnership proposals will continue to be submitted to compete for funding consideration through programs such as Forest Legacy. However, without a continuing role for Service protection of land near the refuge, many lands identified as important for wildlife would continue to be sold, further subdivided, and converted to other uses over time. The collective partnership has identified a Service acquisition and management role as crucial in the long-term protection of those significant natural resources.

Option 3.—Less-than-fee Acquisition

In option 3, we would accomplish our habitat objectives by purchasing only a partial interest, in the form of a conservation easement. The parcel would remain in private ownership, while allowing us some ability to manage land use. The easement would be structured to assure the permanent protection of existing forest lands, allow habitat management/improvement, manage access if endangered or threatened species are present, and provide public use opportunities if the landowner is willing.

In order to accomplish these objectives, we would purchase easements, which, at a minimum, would meet the conditions in Forest Legacy easements now being used in New Hampshire and Maine. Easements are property rights, and are usually perpetual. If a landowner sells his or her property after selling an easement to us, that easement continues as part of the title. Properties subject to easements generally remain on the tax rolls, although the reduction in their market value may reduce their assessments. The Service does not pay revenue sharing for easement rights (see section IX for more on revenue sharing payments).

In general, an easement maintains the land in its current configuration with no further subdivision. Easements are appropriate for use when

- only minimal management of the resource is needed, but there is a desire to ensure the continuation of current undeveloped uses and to prevent fragmentation over the long term;
- a landowner is interested in maintaining ownership of the land, does not want it to be further developed, and would like to realize the financial benefits of selling development rights.

The determination of value for the purchase of a conservation easement involves an appraisal of the rights we are buying, based on recent market conditions in the area. “Acquisition Methods,” below, further describes our proposed easement conditions and structure.

Option 4.—Fee Acquisition

In option 4, we would acquire parcels in fee title from willing sellers, thereby purchasing all rights of ownership. Fee ownership provides the greatest degree of permanent protection for existing forested and wetland habitats, and allows us to

- conduct such activities as habitat management, improvement, and restoration;
- provide public use opportunities and manage access; and
- manage for endangered or threatened species.

Fee purchase at market value is the most expensive method of acquisition, but allows us maximum flexibility in managing the land. It allows us to conduct habitat improvement and restoration projects, and allows the refuge the greatest ability to provide additional opportunities for public use. We identified fee purchase as the preferred method for core lands in the project area. It may become necessary in the future to convert a conservation easement to fee acquisition: for example, when an owner is interested in selling the remainder of his or her interest in land on which we have acquired an easement. We will evaluate that need for each case.

VII. Acquisition Methods

If landowners are interested, we can use three methods of acquiring either a full or a partial interest in parcels within the proposed acquisition boundary: (1) purchase (e.g., fee title, or a partial interest like a conservation easement), (2) donation, and (3) exchange. Attachment A.1 (map tiles 1–6) lists our proposed method for each tract in the project boundary.

Purchase

For most of the tracts in the boundary, the proposed method is listed as *Fee* or *Easement*; however, the method we use ultimately depends partly on the wishes of the landowner.

Fee purchase involves buying the parcel of land outright from a willing seller in fee title (all rights, complete ownership), as the availability of funding allows.

Easement purchase refers to the purchase of limited rights (less than fee) from an interested landowner. The landowner would retain ownership of the land, but would sell certain rights identified and agreed upon by both parties. Our proposed conservation easement objectives and conditions, at a minimum, would meet conditions in Forest Legacy easements now in use in New Hampshire and Maine. These lands generally have been under continuous forest management for

many years; are recognized as an important resource for outdoor recreational activities; include important surface water and surrounding wetland resources; and provide valuable wildlife habitat including habitat for migratory birds, other priority species, and deer wintering areas.

We will maintain areas of conservation easement as undeveloped lands in support of forest and wildlife management activities, natural-resource-based education, and outdoor recreation. We will conduct those in accordance with generally accepted best management practices for the sites, soils and terrain of the property. We may designate certain areas as “Deer Wintering Areas” or “Riparian Areas” identified for special management. The easement will prevent further subdivision of a tract, and will support continued public pedestrian access for low-impact, natural outdoor recreation and education activities such as hiking, nature study, bird watching, hunting, fishing, cross country skiing, snowshoeing, and snowmobile use on designated trails.

As with Forest Legacy easements, Service easements will strive to

- conserve open spaces and scenic values, including the conservation of productive forest land, for their wildlife resource benefits;
- conserve waterfront, streams, riparian areas, wetlands, and the quality of groundwater and surface water resources, fish and wildlife habitats, rare and exemplary plants and natural communities, and the ecological processes that sustain these natural heritage features and cultural resources;
- provide public pedestrian access, which will allow the public to participate in hunting, fishing, wildlife observation, photography, environmental education and interpretation; and
- retain the property in perpetuity as an economically viable and sustainable tract of land for the production of timber, wildlife resources, and aesthetic values.

Donation

We encourage donations in fee title or conservation easement within the approved areas, assuming that management concerns such as contaminants are not major issues. Owners sometimes choose to donate all or a portion of their land because of tax advantages or as a lasting memorial. We are not aware of any opportunities to accept donations of parcels within our proposed boundary; but we would evaluate each case as it arises.

Exchange

We have the authority to exchange land in Service ownership for other land that has greater habitat or wildlife value. Inherent in that concept is the requirement to get dollar-for-dollar value, occasionally with an equalization payment. Exchanges are attractive because they usually do not increase federal land holdings or require purchase funds; however, they also may be very labor-intensive, and take a long time to complete.

Service Land Acquisition Policies

Once a refuge acquisition boundary has been approved, we contact landowners to determine if any are interested in selling. If a landowner expresses interest and gives us permission, a real estate appraiser will appraise the property to determine its market value. Once an appraisal has been approved, we can present an offer for the landowner’s consideration.

Our long-established policy is to work with willing sellers as funds become available. We will continue to operate under that policy. Appraisals conducted by

Service or contract appraisers must meet federal as well as professional appraisal standards. Federal law requires us to purchase properties at market value based on comparable sales of similar types of properties.

We based the acquisition boundary on the biological importance of key habitats. It gives the Service the approval to negotiate with landowners that may be interested, or may become interested in selling their land in the future. With those internal approvals in place, the Service can react more quickly as those important lands become available. Lands within that boundary do not become part of the refuge unless their owners sell or donate them to the Service.

A landowner may choose to sell land to the Service in fee simple and retain the right to occupy an existing residence. That is a “life use reservation.” It applies during the seller’s lifetime, but can also apply for a specific number of years. At the time we acquire the parcel, we would discount from the appraised value of the buildings and land the term of the reservation. The occupant would be responsible for the upkeep on the reserved premises. We would own the land, and pay revenue sharing to the appropriate taxing authority.

In rare circumstances, at the request of a seller, we can use “friendly condemnation.” Although the Service has a long-standing policy of acquiring land only from willing sellers, it does have the power of eminent domain, like other federal agencies. We use friendly condemnation when the Service and a seller cannot agree on property value, and both agree to allow a court to determine fair market value. Alternatively, when we cannot determine the rightful owner of a property, we may use friendly condemnation to clear title. We do not expect to use friendly condemnation very often, if at all. We would not use condemnation otherwise, as it counters good working relations with the public.

Funding for Fee or Easement Purchase

Much of our funding to buy land comes from the Land and Water Conservation Fund (LWCF), which derives from certain user fees, the proceeds from the disposal of surplus federal property, the federal tax on motor boat fuels, and oil and gas lease revenues. About 90 percent of that fund now derives from Outer Continental Shelf oil and gas leases. The federal government receives 40 percent of that fund to acquire and develop nationally significant conservation lands. Another source of funding to purchase land is the Migratory Bird Conservation Fund (MBCF), which derives from Federal Duck Stamp revenue.

We plan to use both funds to buy either full or partial interests in lands in the project area. We will use LWCF funds to acquire land and easements that consist mainly of upland forest, which represents most of the proposed expansion area. We may use MBCF funds for properties that include large tracts of forested, shrub or emergent wetlands and waters important for waterfowl. Another potential source for funding in that category is the North American Wetland Conservation Act.

VIII. Coordination

The original establishment of the refuge arose from the collaboration among the Service, New Hampshire and Maine, conservation organizations, and three principal landowners: James River Company, Boise Cascades Paper Group, and Seven Islands Land Company. The final proposal resulted from a federal-state partnership to cooperate in protecting and managing nationally significant habitats in the area. The Service role was to establish the refuge on core lands identified in the partnership, while the states of New Hampshire and Maine were to pursue the acquisition of conservation easements in portions of the project area.

Service participation in the loosely organized Lake Umbagog Study Team planning group began in the late 1980s. That local partnership promoted and

facilitated the protection of the area's important natural resources, while encouraging sustainable timber management, economic development and ecotourism. The partnership included these participants:

- New Hampshire Department of Fish and Game
- New Hampshire Land Conservation Investment Program
- Maine Department of Inland Fisheries and Wildlife
- Land for Maine's Future Program
- Audubon Society of New Hampshire
- Audubon Loon Preservation Committee
- James River Corporation
- Boise Cascade
- Seven Islands Land Management Company
- Local landowner representatives
- U.S. Fish and Wildlife Service

Since that time, conservation in the region has evolved into a dynamic, landscape-level, multi-partner effort. State agencies, many private conservation organizations, local communities, private businesses and the Service continue to work on additional conservation goals in the area. Additional active partners include

- Appalachian Mountain Club
- Town of Errol
- Forest Society of Maine
- New England Forestry Foundation
- New Hampshire's Land and Community
- Heritage Investment Program
- Northern Forest Alliance
- Rangeley Lakes Heritage Trust
- Society for the Protection of New Hampshire Forests
- The Nature Conservancy
- Trust for New Hampshire Lands
- Trust for Public Land
- The Nature Conservancy

We continue to work closely with the New Hampshire Department of Fish and Game and the Maine Department of Inland Fisheries and Wildlife. Both agencies participated as full core team members in developing the Lake Umbagog refuge CCP and LPP. Agency representatives attended essentially all team meetings, and contributed guidance and perspective in the development of our refuge goals, objectives and strategies. Representatives of additional state agencies, such as the New Hampshire Department of Resources and Economic Development Division of Parks and Recreation, provided input on specific topics at various times during the process. Other federal agencies that provided input include the U.S. Forest Service and the USDA Natural Resources Conservation Service. The New England Field Office of our Division of Ecological Services also provided support. Several meetings solicited input from experts on freshwater wetlands, forest management and bird conservation, and forest ecologists from academic institutions and state and federal agencies.

We will distribute this LPP to all affected landowners, our conservation partners, county and town offices, and the public for 45 days of public review and comment. We plan to host public meetings in Errol, Berlin, and Concord, New Hampshire, and in Bethel, Upton, and Augusta, Maine. We will publish the details of each meeting in advance for our project mailing list, in local media, and at the refuge.

IX. Socioeconomic and Cultural Impacts

The following discussion of impacts assumes the implementation of CCP alternative B, including our expansion proposal. By maintaining land in an undeveloped, natural condition, the refuge contributes to the economy of Errol and Upton, and Coos and Oxford counties. Studies of the cost of community services show that open space costs towns less than residential or commercial development, which requires town services such as schools, utilities, and emergency services. Although such development increases a town's tax base, the expenses for increased services outweigh the taxes generated from residential and commercial uses. Appendix G of the CCP provides a detailed economic analysis of this proposal. We have taken the highlights below from that report.

The refuge contributes directly to the local economy through annual refuge revenue sharing (RRS) payments. Payments are made to the following localities based on the acreage and appraised value of refuge lands: Errol, Cambridge and Wentworth Location in New Hampshire; and Upton and Magalloway Plantation in Maine. The federal government does not pay property tax, but the Service makes annual payments based on a maximum of three-quarters of 1 percent of the market value of refuge lands, determined by an appraisal every 5 years. The actual amount distributed each year varies, based on Congressional appropriations for that year. The amount distributed also changes as we acquire new lands. Table A.6, below, depicts the amounts we distributed to the local municipalities between 2001 and 2005.

Table A.6. Refuge revenue sharing payments in 2001–2005

Township	2001	2002	2003	2004	2005
Magalloway	\$5,543	\$5,657	\$5,285	\$5,709	\$5,049
Upton	5,911	6,828	7,079	6,804	6,018
Cambridge	744	759	709	681	603
Errol	11,517	11,755	22,948	22,056	19,509
Wentworth Location	\$3,112	\$4,959	\$6,057	\$6,119	\$6,467

We compared lost property taxes and RRS payments for all lands proposed for fee acquisition. Although we calculated these amounts for all fee lands in

the expansion area, acquisition generally occurs slowly over time, as lands and funding become available. We estimated the loss in local property tax revenue using the 2005 current value assessments for each land type and the 2005 tax rates for each potentially affected community. The Service does not pay RRS for easements. We calculated the RRS payments at the full, appropriated level and at the level of funding authorized in FY05. We estimated the market value for lands in the acquisition area at \$500/acre based on recent sales of forestland to the refuge.

Table A.7 shows the estimated change in property taxes collected and the RRS payments, if we acquired all of the land in the expansion area. An annual loss of \$30,511 in property tax collections in Coos and Oxford counties would result. At the current, authorized funding level of 41 percent, RRS would result in an annual payment of \$49,444, which would offset the loss in property tax collections and result in an annual net increase of \$18,934. Upton, Maine, is the only town that would experience an actual net loss of \$1,377 annually. Cambridge, New Hampshire, does not assess property taxes; and, would benefit most from the RRS payments. With current RRS payments of \$37,646, and the potential \$49,444 increase for new land acquisition, RRS payments would total \$87,090 if we acquired all proposal lands.

Table A.7. Property tax and RRS impacts of land acquisition

Township	Tax Assessed Values	Change in Taxes Collected	Full Refuge Revenue Sharing (RRS) Payment	41% of RRS Payment	Overall Change in Taxes Collected Net of 41% RRS Payments
Grafton	\$358,810	-\$3,061	\$9,334	\$3,827	+\$766
Magalloway Plantation	\$682,436	-\$4,095	\$18,416	\$7,551	+\$3,456
Upton	\$1,691,442	-\$18,322	\$41,329	\$16,945	-\$1,377
Cambridge	\$443,583	\$0	\$26,824	\$10,998	+\$10,998
Errol	\$339,682	-\$4,243	\$19,268	\$7,900	+\$3,657
Wentworth Location	\$101,031	-\$791	\$5,426	\$2,225	+\$1,434
Totals	\$3,616,984	-\$30,511	\$120,596	\$49,444	+\$18,934

We estimated the additional economic impacts of alternative B using IMPLAN, a computerized database and modeling system that provides a regional analysis of economic activity developed by the USDA Forest Service. Using that model, we predicted that RRS payments would generate new total economic impacts of \$77,800 in local output (local sales or revenue), 1.5 jobs, and \$46,200 in personal income (USFWS Lake Umbagog Draft CCP).

We also analyzed recreational opportunities and levels of visitation. We predict those levels would increase, due to refuge land acquisition, additional public use infrastructure, and regional visitation trends. Estimates were made for visitation levels associated with each major visitor activity: fishing, hunting, use of trails and water, other wildlife viewing and observation, and snowmobiling on trails, and total annual economic impacts associated with non-local visitation were estimated. Much of the predicted increase in visitation is based on the number of people that currently recreate on lands proposed for acquisition by the refuge, so that portion does not represent a real increase in visitation or economic activity to the area. Of the increase, 2,985 out of the 3,569 wildlife viewing related visitor days were determined to be an actual increase in visitation and economic activity to the area that would generate total economic impacts of \$150,900 in local output, 2.4 jobs and \$53,000 in personal income. It is worth noting that refuge

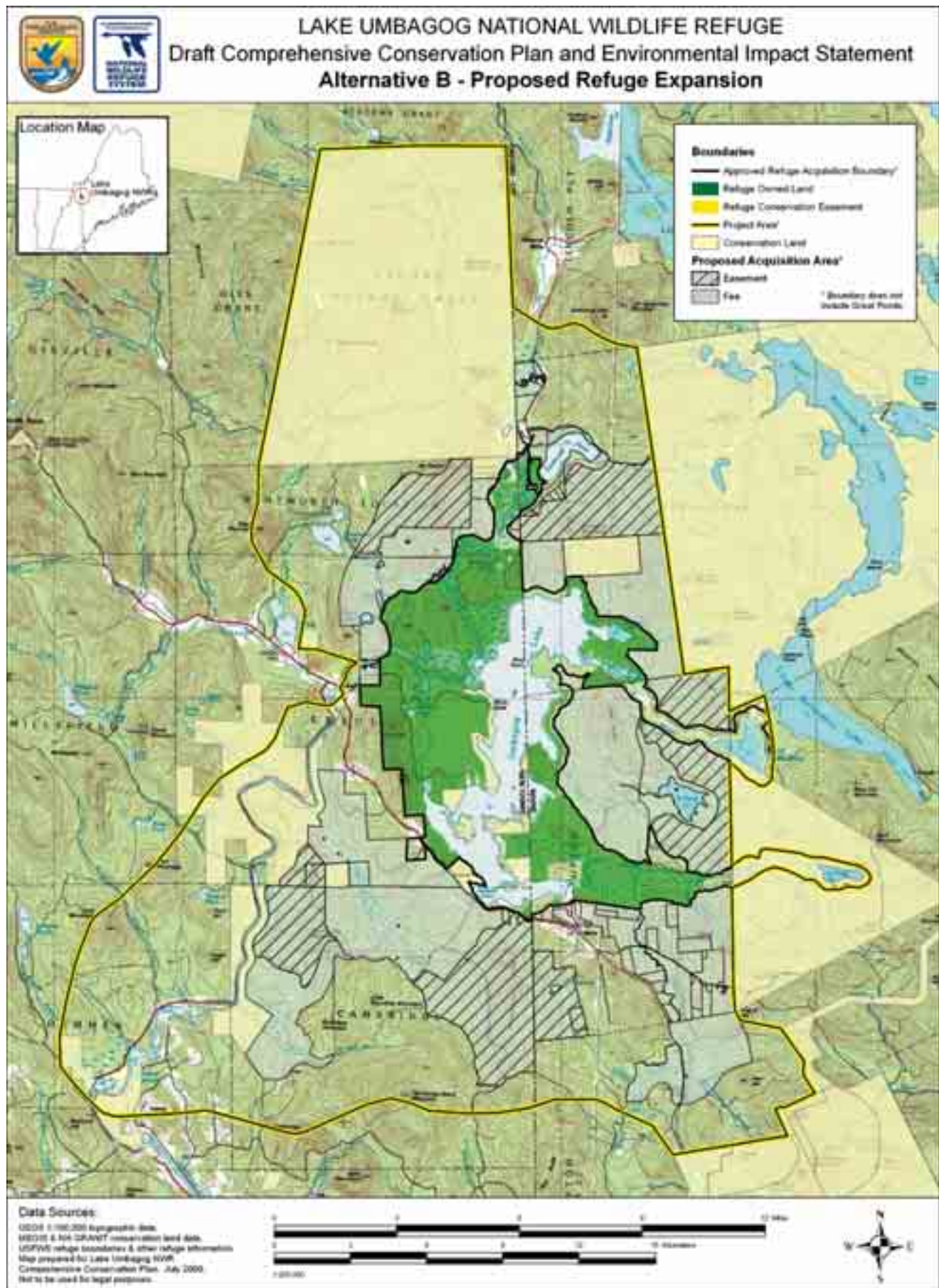
land acquisition maintains access for the public recreational activities listed above that otherwise cannot be guaranteed.

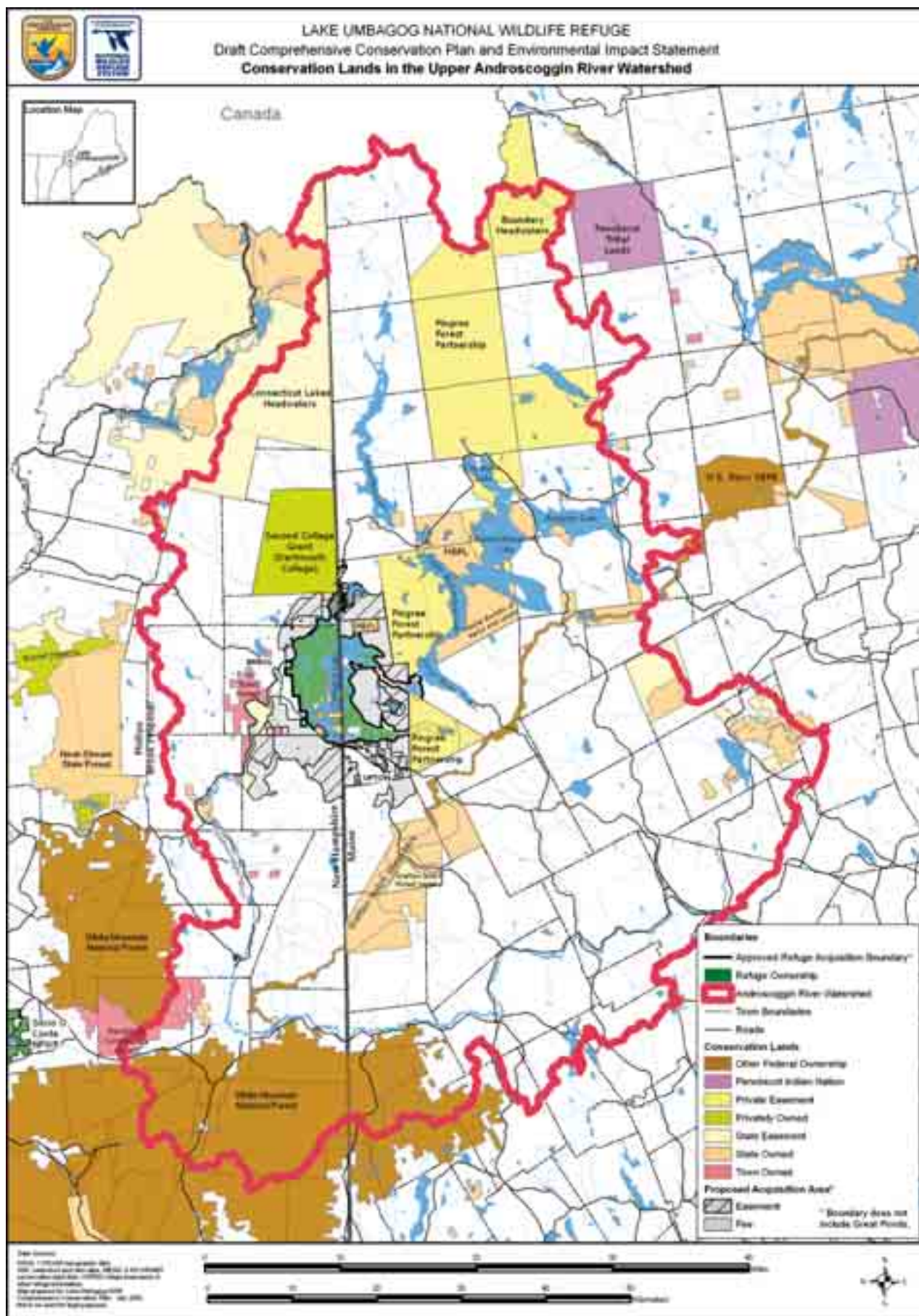
Now that the refuge owns a substantial amount of acreage, we have identified timber harvest quantities for refuge lands (saw timber, pulp, and fuel wood) based on a 15 percent management unit harvest in 15-year intervals. We based annual harvest quantities on two major assumptions: (1) we base harvest numbers on current refuge lands at current stocking volumes; and, (2) as we acquire land, the private owner would have harvested it before the sale. We expect the stocking volumes on those lands to be low enough to prevent additional harvesting within the 15-year planning horizon of the CCP. The private owner would realize all economic gains before Service ownership. Therefore, we expect no economic impacts associated with timber production for forestlands we acquire in the expansion area until they have grown harvestable again.

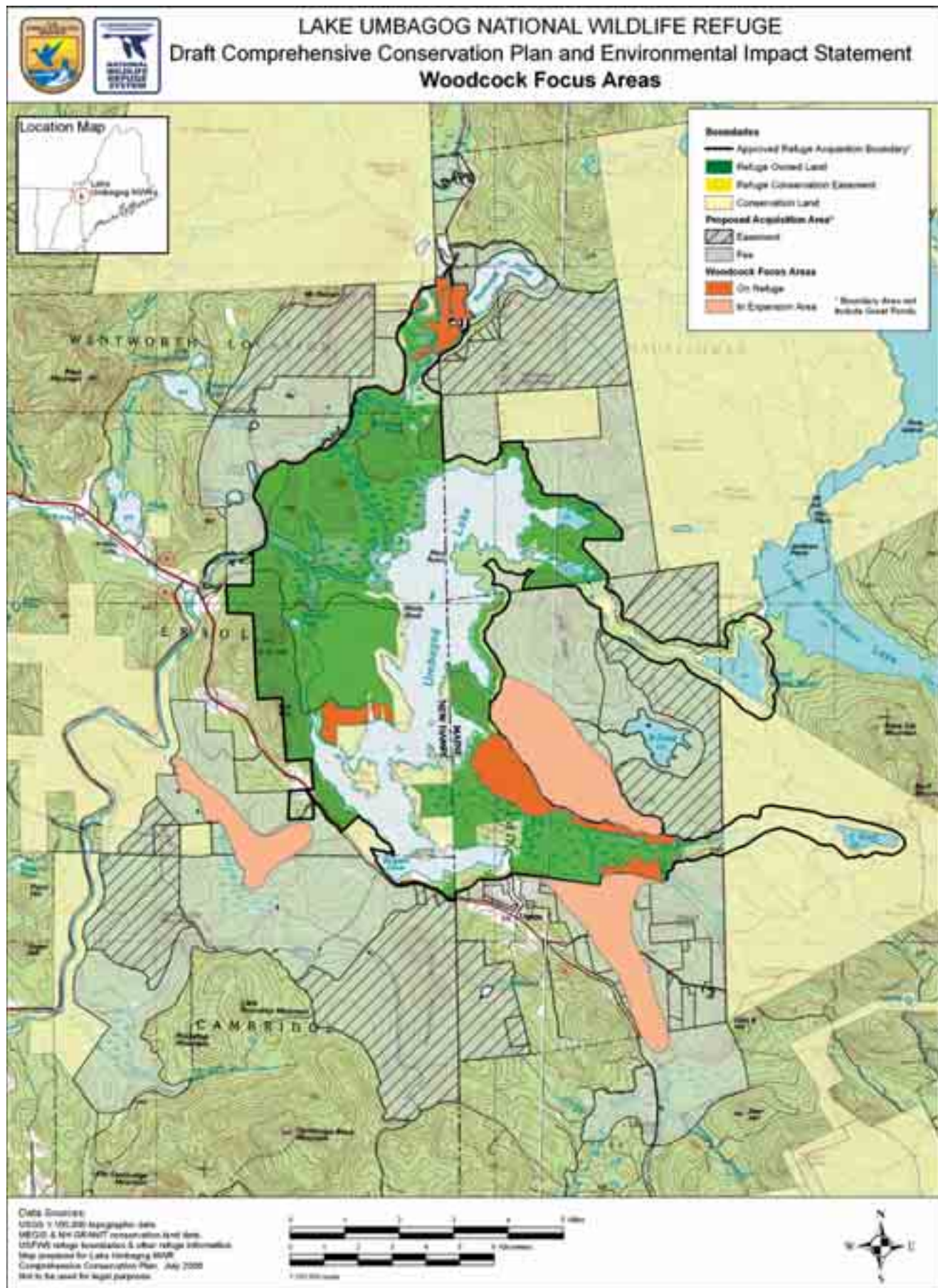
As for cultural resources, refuge ownership would increase their protection on any additional lands we acquire. Although we have not done a records or field inventory on those privately owned lands, we know of no recorded sites. The National Historic Preservation Act and Archaeological Resources Protection Act mandate that federal agencies protect cultural resources. Service ownership would protect known cultural sites against vandalism, and would protect yet unidentified or undeveloped cultural sites from disturbance or destruction. Our environmental education and interpretation programs will continue to promote public understanding and appreciation of the area's rich cultural resources.

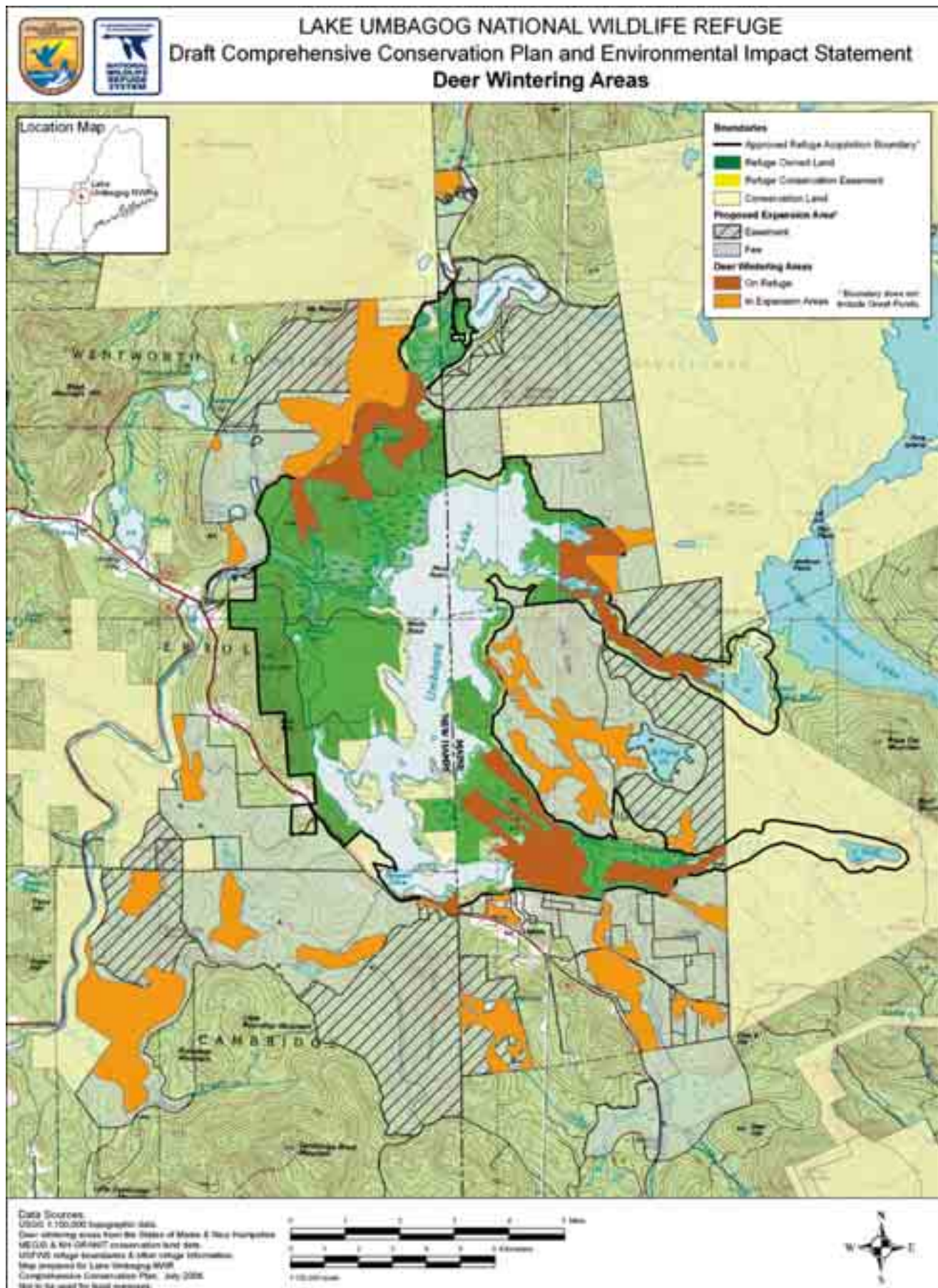
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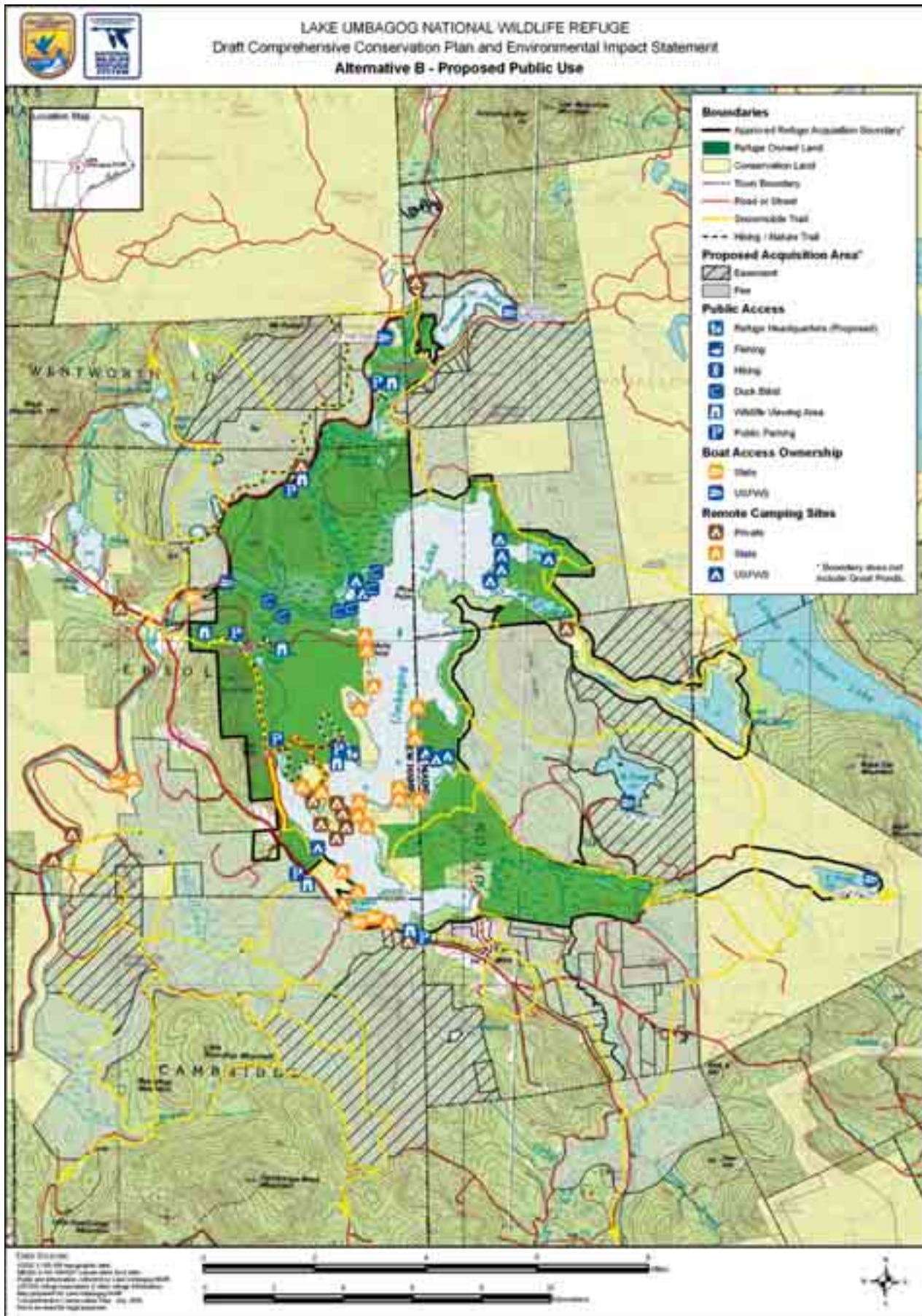
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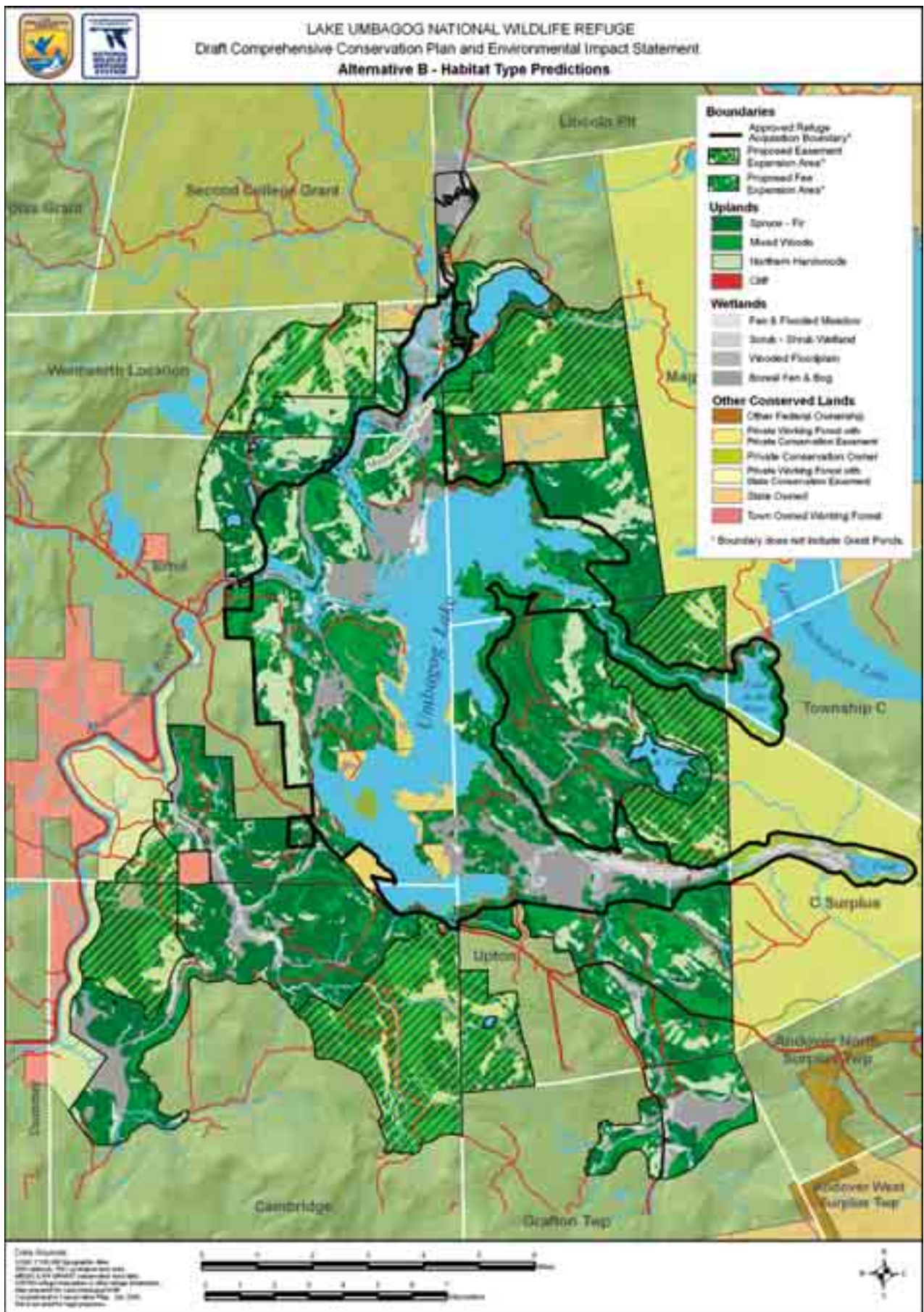












Attachment A.1 Parcel Maps and Table

The following set of six maps (map tiles 1–6) show the present refuge and all parcels of land in our proposed acquisition area. The corresponding table lists each parcel, its tax parcel identification number, state and town, acreage, our recommended method and priority for its acquisition, and its size, estimated by our Geographic Information System. We based that information on town and county tax data.

We will acquire either full or partial interest in land parcels by purchase, when willing sellers make them available and funding is available. These are the definitions of each column head in that table.

LPP Number	Land Protection Plan map identification number
Parcel	Existing town or county tax parcel identification number
State	Maine or New Hampshire
Town	Town name
Acquisition Method	Purchase in fee title or conservation easement (see discussion in AAcquisition Method,@ above)
Acquisition Priority	Priority 1—Lands remaining unacquired within the original refuge acquisition boundary Priority 2—Fee lands within the proposed expansion boundary Priority 3—Conservation easement lands within the proposed expansion boundary
Acres (GIS)	Acreage measured by our Geographic Information System (GIS); represents approximate acreage of portion of parcel within Fee or Easement boundary

Table A.8. Lake Umbagog NWR Land Protection Parcel List

FWS NUMBER	PARCEL	STATE	TOWN	ACQUISITION METHOD	PRIORITY	ACRES (GIS)
1	1-31	ME	Magalloway	fee	2	145
2	1-30	ME	Magalloway	fee	2	30
3	1-27	ME	Magalloway	fee	2	22
4	1-24	ME	Magalloway	fee	2	113
5	1-16	ME	Magalloway	fee	2	137
6	2-42	ME	Magalloway	fee	2	47
7	2-49	ME	Magalloway	fee	2	21
8	6-1	ME	Magalloway	fee	2	10
9	2-52	ME	Magalloway	fee	2	2
10	2-51	ME	Magalloway	fee	2	1
11	2-50	ME	Magalloway	fee	2	96
12	2-53	ME	Magalloway	fee	2	0
13	2-53	ME	Magalloway	fee	2	0
14	6-1	ME	Magalloway	fee	2	427
15	6-1	ME	Magalloway	easement	3	3175
16	2-17	ME	Magalloway	fee	2	19
17	2-14	ME	Magalloway	fee	2	26
18	2-13	ME	Magalloway	fee	2	26
19	2-12	ME	Magalloway	fee	2	18
20	2-10	ME	Magalloway	fee	2	24
21	2-5	ME	Magalloway	fee	2	6
22	2-1	ME	Magalloway	fee	2	16
23	218-1	NH	Wentworth Location	fee	2	34
24	218-2	NH	Wentworth Location	fee	2	44
25	3-1	ME	Magalloway	fee	2	802
26	6-1	ME	Magalloway	fee	2	2656
27	4-9	ME	Magalloway	fee	2	7
28	4-14	ME	Magalloway	fee	2	132
29	000-7	ME	Upton	fee	2	4564
30	6-6	ME	Upton	fee	2	201
31	6-6	ME	Upton	easement	3	1249
32	000-8	ME	Upton	fee	2	1171
33	7-1	ME	Upton	fee	2	2
34	000-4	ME	Upton	easement	3	2529
35	2-81	ME	Upton	fee	2	21
36	2-84	ME	Upton	fee	2	55
37	2-98	ME	Upton	fee	2	41

FWS NUMBER	PARCEL	STATE	TOWN	ACQUISITION METHOD	PRIORITY	ACRES (GIS)
38	2-97	ME	Upton	fee	2	85
39	2-85	ME	Upton	fee	2	9
40	2-85B	ME	Upton	fee	2	5
41	2-92	ME	Upton	fee	2	15
42	2-131	ME	Upton	fee	2	190
43	2-123	ME	Upton	fee	2	143
44	2-124	ME	Upton	fee	2	50
45	2-133	ME	Upton	fee	2	7
46	2-134	ME	Upton	fee	2	6
47	2-160	ME	Upton	fee	2	310
48	9-2	ME	Upton	fee	2	92
49	000-6	ME	Upton	fee	2	749
50	9-3	ME	Upton	fee	2	96
51	000-5	ME	Upton	fee	2	1177
52	9-4	ME	Upton	fee	2	181
53	10-20	ME	Upton	fee	2	181
54	10-19	ME	Upton	fee	2	220
55	10-18	ME	Upton	fee	2	515
56	10-1	ME	Upton	fee	2	15
57	10-2	ME	Upton	fee	2	289
58	10-3	ME	Upton	fee	2	8
59	10-17	ME	Upton	fee	2	1
60	10-16	ME	Upton	fee	2	10
61	10-14	ME	Upton	fee	2	0
62	10-13	ME	Upton	fee	2	0
63	10-10	ME	Upton	fee	2	18
64	10-9	ME	Upton	fee	2	1
65	10-8	ME	Upton	fee	2	1
66	10-5	ME	Upton	fee	2	3
67	10-4	ME	Upton	fee	2	2
68	10-6	ME	Upton	fee	2	3
69	10-7	ME	Upton	fee	2	232
70	10-11	ME	Upton	fee	2	102
71	10-15	ME	Upton	fee	2	114
72	10-22	ME	Upton	fee	2	49
73	10-24	ME	Upton	fee	2	56
74	10-25	ME	Upton	fee	2	70
75	10-26	ME	Upton	fee	2	2

Table A.8

FWS NUMBER	PARCEL	STATE	TOWN	ACQUISITION METHOD	PRIORITY	ACRES (GIS)
76	10-12	ME	Upton	fee	2	37
77	OX002 1 7	ME	Grafton Twp	fee	2	1798
78	OX002 1 1	ME	Grafton Twp	fee	2	707
79	1-34	ME	Upton	easement	3	115
80	1-64	ME	Upton	easement	3	1276
81	1619-1.2	NH	Cambridge	easement	3	4643
82	206-34	NH	Cambridge	easement	3	39
83	1619-2	NH	Cambridge	easement	3	1
84	1619-1.2	NH	Cambridge	fee	2	4533
85	1619-3	NH	Cambridge	fee	2	2
86	1619-5	NH	Cambridge	fee	2	1
87	1619-4	NH	Cambridge	fee	2	1
88	1619-1.2	NH	Cambridge	fee	2	2628
89	1619-1.2	NH	Cambridge	easement	3	2048
90	r2-22	NH	Errol	easement	3	307
91	r3-5	NH	Errol	easement	3	174
92	r3-3	NH	Errol	fee	2	188
93	r2-22	NH	Errol	fee	2	2727
94	r3-2	NH	Errol	fee	2	0
95	r3-1	NH	Errol	fee	2	1
96	r3-6	NH	Errol	fee	2	1
97	r3-7	NH	Errol	fee	2	1
98	r15-2	NH	Errol	fee	2	132
99	r15-2	NH	Errol	fee	2	4
100	r15-2	NH	Errol	fee	2	16
101	r15-4	NH	Errol	fee	2	2131
102	1624-3	NH	Wentworth Location	fee	2	802
103	216-1	NH	Wentworth Location	fee	2	0
104	1624-3	NH	Wentworth Location	easement	3	2189
105	217-6	NH	Wentworth Location	fee	2	412
106	220-1	NH	Wentworth Location	fee	2	162

